ATTACHMENT 31

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

CISCO SYSTEMS, INC.,
          Plaintiff,
vs.   No. 5:14-cv-05344-BLF(PSG)
ARISTA NETWORKS, INC.,
          Defendant.
_____/

CONFIDENTIAL PURSUANT TO THE PROTECTIVE ORDER

VIDEOTAPED DEPOSITION OF TONG LIU
FRIDAY, JANUARY 15, 2016
PALO ALTO, CALIFORNIA

Reported by:
ANDREA M. IGNACIO, CSR, RPR, CRR, CCRR, CLR
CSR LICENSE NO. 9830
JOB NO. 2211574
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1   UNITED STATES DISTRICT COURT
2   NORTHERN DISTRICT OF CALIFORNIA
3   SAN JOSE DIVISION
4
5   CISCO SYSTEMS, INC.,
6   Plaintiff,
7   vs.   No. 5:14-cv-05344-BLF(PSG)
8   ARISTA NETWORKS, INC.,
9   Defendant.
    _____/
10
11
12
13
14   Videotaped Deposition of Tong Liu, taken on
15   Friday, January 15, 2016, pursuant to notice, on
16   behalf of the Defendants, at 610 Page Mill Road,
17   Palo Alto, California before me, ANDREA M. IGNACIO,
18   CSR, RPR, CRR, CCRR, CLR ~ CSR License No. 9830
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24
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1   A P P E A R A N C E S:
2
3
4   ON BEHALF OF THE PLAINTIFF CISCO SYSTEMS, INC., and
5   the WITNESS:
6   QUINN EMANUEL URQUHART & SULLIVAN, LLP
7   By: SEAN S. PAK, Esq.
8   50 California Street, 22nd Floor
9   San Francisco, California 94111
10   Phone: 415.875.6600
11   seanpak@quinnemanuel.com:
12
13
14   ON BEHALF OF THE DEFENDANT ARISTA NETWORKS, INC.:
15   KEKER & VAN NEST LLP
16   By: RYAN WONG, Esq.
17   633 Battery Street
18   San Francisco, California 94111-1809
19   Phone: 415.773.6682
20   rwong@kvn.com
21
22   ALSO PRESENT: Kevin Foor, Videographer
23
24   ---oOo---
25

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1   I N D E X
2
3   WITNESS: Tong Liu
4
5   EXAMINATION   PAGE
6   By Mr. Wong   7, 207
7   By Mr. Pak   185
8
9   E X H I B I T S
10   EXHIBIT   PAGE
11   Exhibit 92 Amended Exhibit F; 45 pgs.   67
12   Exhibit 93 IEEE Standard for a Precision   84
13   Clock Synchronization Protocol
14   for Networked Measurement and
15   Control Systems, Bates
16   ARISTANDCA00031733 - '32021;
17   289 pgs.
18   Exhibit 94 IEEE1588 Precision Tine Protocol 100
19   Platform-Independent Software
20   Functional Specification, Bates
21   CSI-CLI-00610555 - '81; 27 pgs.
22   Exhibit 95 6-25-08 E-mail, Subject: Seeking 122
23   permission for adding PTP CLI
24   comments; Bates CSI-CLI-00846643;
25   1 pg.

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1   E X H I B I T S (Continued.)
2
3   EXHIBIT   PAGE
4   Exhibit 96   6-25-08 E-mail, Subject: Seeking   124
5   permission for adding PTP CLI
6   commands, Bates CSI-CLI-00608739
7   - '40; 2 pgs.
8   Exhibit 97   6-26-08 E-mail, Subject: Seeking   128
9   permission for adding PTP CLI
10   commands, Bates CSI-CLI-00846656
11   - '57; 2 pgs.
12   Exhibit 98   Cisco Nexus 7000 Series NX-OS   157
13   System Management Command
14   Reference, Bates CSI-CLI-00194055
15   - '9480; 626 pgs.
16
17   ---oOo---
18
19   PREVIOUSLY MARKED EXHIBITS
20
21   Exhibit 53   CLI Design and Review Guide, Bates
22   CSI-ANI-00073381 - '.000014; 15 pgs.
23
24
25

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1   PALO ALTO, CALIFORNIA
2   FRIDAY, JANUARY 15, 2016
3   9:32 A.M.
4
5
6
7   THE VIDEOGRAPHER: Good morning. We are on
8   the record at 9:32 on January 15th of the year 2016.
9   This is the video deposition of Tong Liu.
10   My name is Kevin Foor. I'm here with court
11   reporter Andrea Ignacio. And we are here from
12   Veritext Legal Solutions at the request of Keker &
13   Van Nest.
14   This deposition is being held at Wilson
15   Sonsini Goodrich & Rosati in Palo Alto.
16   The caption of the case is Cisco Systems,
17   Inc., v. Arista Networks. That is case 514-CV-05344
18   ELF BSG.
19   Please note that audio and video recording
20   will take place unless all parties agree to go off the
21   record. Microphones are sensitive and may pick up
22   whispers, private conversations, and cell
23   interference.
24   I'm not related to any party in this action,
25   nor am I interested financially in the outcome in any

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1   way.
2   If there are any objections to proceeding,
3   please state them at the time of your appearance.
4   And if you would please state your
5   appearances.
6   MR. WONG: Ryan Wong from Keker & Van Nest
7   for defendant Arista Networks.
8   MR. PAK: Sean Pak of Quinn Emanuel,
9   representing Cisco and the witness.
10   THE VIDEOGRAPHER: Thank you.
11   If the court reporter would please swear the
12   witness, we can begin.
13
14   TONG LIU,
15   having been sworn as a witness
16   by the Certified Shorthand Reporter,
17   testified as follows:
18
19   EXAMINATION
20   BY MR. WONG:
21   Q   Good morning, Ms. Liu.
22   A   Good morning.
23   Q   Please state your full name for the record.
24   A   Tong Liu.
25   Q   Do you go by any other names, Ms. Liu?

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1   A   At work, I go with Toni.
2   Q   Could you spell Toni for me, please.
3   A   T-O-N-I.
4   Q   Okay. Have you gone by Toni Liu for -- for
5   what period of time have you gone by Toni Liu?
6   A   That name is only used at work. It's not an
7   officially alternative name.
8   Q   And besides Toni Liu, have you gone by any
9   other names, Ms. Liu?
10   A   No.
11
12
13
14
15
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18
19
20   Q   Thank you.
21   Who is your current employer, Ms. Liu?
22   A   Aruba Networks.
23   Q   Do you have a work address for Aruba
24   Networks?
25   A   1322 Crossman Avenue, Sunnyvale.

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1   MR. WONG: You testified earlier that PTP was
2   one of the protocols identified to be interoperative.
3   Q   Were there -- were you aware of any other
4   protocols that were identified to be interoperative?
5   A   I'm not aware of that.
6   Q   Okay. But you were aware that PTP was
7   identified?
8   A   Right.
9   Q   And do you know which other vendors supported
10   PTP, based upon your team's investigation, before
11   adding PTP to the industrial Ethernet products?
12   A   Siemens is one vendor.
13   Q   Okay. So Siemens supported PTP in its
14   devices before PTP functionality was added to the
15   Cisco industrial Ethernet devices; correct?
16   MR. PAK: Objection; calls for speculation.
17   THE WITNESS: I don't know the -- I don't
18   recall the exact details, but I do remember Siemens
19   was mentioned in our previous conversations. I mean,
20   the -- was in the team.
21   MR. WONG: Oh.
22   Q   Siemens was --
23   A   I --
24   Q   Sorry. Go ahead.
25   A   Yes, as one important vendor for industrial

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1   devices.
2   Q   And I think you answered this earlier, but
3   your team did not look at the specifics of how Siemens
4   implemented PTP when you started adding PTP commands
5   to Cisco's industrial Ethernet devices; correct?
6   A   We didn't look at any other vendor's device
7   at the time.
8   Q   Okay. Have you seen the IEEE PTP standard
9   before?
10   A   "Before" meaning before today or before --
11   Q   Yes, before today.
12   A   Before today, yes.
13   Q   When was the first time that you saw the IEEE
14   PTP standard?
15   A   That's when I was working on this industrial
16   Ethernet switch development around 2008, I think.
17   Q   Was it your choice to add -- I'm sorry.
18   Strike that.
19   Was it your suggestion to add PTP
20   functionality to the Cisco industrial Ethernet device?
21   A   It was some decision made, and I was the one
22   implementing it.
23   Q   I see.
24   So somebody else at Cisco made the decision
25   to add PTP functionality to the Cisco industrial

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1   Ethernet device, and you worked on implementing that?
2   A   Right.
3   Q   Okay. And you don't know the reasons behind
4   the decision to add PTP functionality -- well,
5   actually, strike that.
6   So did you see the IEEE PTP standard before
7   you began adding PTP functionality to the Cisco
8   industrial Ethernet device?
9   A   When you say "before," it's before I started
10   writing code?
11   Q   Yes.
12   A   I -- yes, I read the spec --
13   Q   Okay.
14   A   -- for understanding -- to understand how it
15   works.
16   Q   I see.
17   So you read the -- and by "the spec," you
18   mean the IEEE PTP spec?
19   A   Yes.
20   Q   During the break, the court reporter marked
21   as Exhibit No. 93 the document right there to your
22   right.
23   MR. WONG: And counsel, here's a copy for you
24   as well.
25   MR. PAK: Thanks.

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1   MR. WONG: The document bears control numbers
2   AristaNDCA00031733 to '32021.
3   Q   Ms. Liu, you can take your time to look at
4   the document, but the question that I have for you is:
5   Do you recognize this document marked as Exhibit 93?
6   A   Yes, I -- I think this is the one we used, as
7   well as the standard.
8   Q   Okay. Can you read the title of the IEEE
9   specification marked as Exhibit 93.
10   A   "IEEE standard for the precision clock
11   synchronization protocol for network measurement and
12   control systems."
13   Q   Okay. And the -- the -- I guess the number
14   for the standard on the bottom right is IEEE
15   standard 1588-2008.
16   Do you see that?
17   A   Yes, uh-huh.
18   Q   And this is the PTP IEEE standard that we
19   have been talking about in this deposition; correct?
20   A   Yes.
21   Q   Okay. So -- so the exhibit marked as 93 is
22   the standard that you reviewed before you began coding
23   the PTP functionality for the Cisco industrial
24   Ethernet device; correct?
25   A   Yes.

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1   Q Okay. And did you read the entire standard
2 before you began working on the PTP functionality?
3   A Yeah, I believe I read the -- the entire --
4 or the majority part of it.
5   Q That's -- that's impressive.
6   How -- the standard is -- is several hundred
7 pages long.
8   But you read the whole thing -- you remember
9 reading the whole thing?
10   A Yes.
11   Q Did you consult with the standard marked as
12 Exhibit 93 while you were coding the PTP functionality
13 for Cisco's industrial Ethernet devices?
14   A Yes. All of the messages format, the field
15 definitions behaviors, are documented here.
16   Q Okay. So -- so every PTP functionality --
17 every aspect of PTP functionality that you implemented
18 in Cisco's industrial Ethernet devices are based on
19 the IEEE standard marked as Exhibit 93?
20   MR. PAK: Objection; mischaracterizes the
21 witness' testimony.
22   MR. WONG: Q. Correct?
23   MR. PAK: Assumes facts not in evidence.
24   THE WITNESS: There are multiple parts of it
25 for the implementation part. There is the protocol

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1 part, which are the messages, the state machine, the
2 field definitions. Those we base off the -- the spec.
3 There are the way we calculate the clock difference.
4 Those are not documented here. Those are what we
5 developed. And there's also the CLI command which we
6 came up with separately.
7   MR. WONG: Q. When you say "messages," what
8 do you mean by messages?
9   A So, the PTP protocol has -- if I recall, has
10 multiple set -- is a handshaking message. So the
11 format of the message, which one follows what, which
12 field is contained in which message, those are defined
13 in the spec.
14   Q Okay. And you followed those definitions
15 when you implemented the PTP functionality in Cisco's
16 industrial Ethernet devices; right?
17   A Yes, the format of the messages.
18   Q Okay. You also mentioned field definitions.
19   What do you mean by field definitions?
20   A Those are inside of the message itself.
21   Q Okay. What are fields?
22   A Like, header, checksum. There are time
23 stamps inside of the message, and how big -- how wide
24 the field is. So those -- those are the field
25 definitions which have specific meaning inside of the

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1 message.
2   Q And those are specified in the IEEE PTP
3 standard; right?
4   A Yes.
5   Q And you followed those standards when
6 implementing the PTP functionality in Cisco's
7 industrial Ethernet products; right?
8   MR. PAK: Objection; vague.
9   THE WITNESS: For the messages, yes.
10   MR. WONG: Q. And for the field definitions
11 as well?
12   A The field definition -- if you mean the --
13 how wide the field is, which field needs to follow
14 which one, yes. But particularly on the name of the
15 field, that may not necessarily be the same as the
16 spec.
17   Q Okay. Did you have any role in developing
18 the PTP standard marked as Exhibit 93?
19   A You mean contributing to the standard itself?
20   Q Yes.
21   A No.
22   Q Did you contribute to the standard that
23 preceded the standard marked as Exhibit 93?
24   And I believe you called that PTP version 1.
25   A No.

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1   Q Did you have any role in drafting the
2 document that is marked as Exhibit 93?
3   A No.
4   Q Do you know -- I think I know the answer --
5 but do you know if Mr. Bilstead had any role in
6 developing the standard marked as Exhibit 93?
7   A I don't know anything about that part.
8   Q Okay. And you don't know anything about
9 whether Mr. Watve had contributed to the standard
10 marked as Exhibit 93?
11   A I don't know that part, either.
12   Q Okay. Excuse me.
13   MR. WONG: Can we mark this one as 94.
14   (Document marked Exhibit 94
15   for identification.)
16   MR. WONG: Okay. The court reporter has
17 marked Exhibit 94, the document with control
18 Nos. CSI-CLI-00610555 to '610581.
19   Q Ms. Liu, take your time in looking at this
20 document, but my first question for you is whether you
21 recognize this document?
22   A I don't recognize this document.
23   Q Okay. Have you seen any version of this
24 document, to your knowledge?
25   A No, I don't recall seeing this document.

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1   MR. WONG: Q. -- that PTP meant precision
2   time protocol?
3   MR. PAK: Same objections.
4   THE WITNESS: I don't think it's well known
5   in the entire networking industry.
6   MR. WONG: Okay.
7   Q Was there a subset of the networking industry
8   where PTP was known to refer to the PTP in Exhibit 93?
9   MR. PAK: Objection; vague; calls for
10 speculation; assumes facts not in evidence.
11   THE WITNESS: It's not as normal a term as IP
12 or MAC. The -- the term is still -- I think even for
13 people who are working on the Catalyst switches, it's
14 not a very well-known term.
15   MR. WONG: Okay.
16   Q But certainly, the IEEE standard marked as
17 Exhibit 93 defines the PTP acronym; correct?
18   A Yes.
19   Q And uses the PTP acronym --
20   A Yes.
21   Q -- to describe precision time protocol;
22 correct?
23   A True.
24   Q And it uses that PTP acronym to describe the
25 PTP functionality that you implemented in Cisco's

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1   industrial Ethernet devices; right?
2   MR. PAK: Objection; assumes facts not in
3   evidence; mischaracterizes the witness' prior
4   testimony.
5   THE WITNESS: In this spec, yes.
6   MR. WONG: Q. Well, is PTP used in Cisco's
7   industrial Ethernet device in a different way than
8   what PTP means in Exhibit 93?
9   MR. PAK: Objection; vague.
10   MR. WONG: Let me rephrase the question.
11   Q In the five commands that you're associated
12 with in Exhibit 92 --
13   A Right.
14   Q -- all of them use the acronym PTP; correct?
15   A Yes.
16   Q That PTP refers to the same PTP that is shown
17 on page 8 of Exhibit 93; right?
18   MR. PAK: Objection; vague.
19   THE WITNESS: I think when I chose the
20 command, yes, I used PTP to mean the same as precision
21 time protocol --
22   MR. WONG: Right.
23   THE WITNESS: -- as in the spec.
24   MR. WONG: Q. As in the spec and, in fact,
25 as in -- as on page 8 of Exhibit 93, correct, which

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1   lists the PTP -- which lists PTP as an acronym;
2   correct?
3   MR. PAK: Objection; vague.
4   THE WITNESS: I would say the meanings are
5   the same, that they mean precision time protocol.
6   MR. WONG: Q. Well, the -- the words are the
7   same, too; correct?
8   PTP in the command is the same three letters
9   that appear on page 8 of Exhibit 93; correct?
10   A It's the same acronym.
11   Q And they're referring to the same protocol;
12 correct?
13   A Yes.
14   Q Now, if you'll turn to page 4 of Exhibit 93.
15   A (Witness complies.) Okay.
16   Q You can take off the -- well --
17   A This is --
18   Q -- maybe you want to keep that together,
19 actually.
20   A Right.
21   Q On page 4 of Exhibit 93, there is a large
22 heading No. 3 entitled:
23   "Definitions, acronyms, and abbreviations."
24   Do you see that?
25   A Yes.

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1   Q And then subsection 3.1 says "Definitions."
2   Do you see that?
3   A Yes.
4   Q Definition 3.1.4 in the IEEE PTP
5   specification defines the term "clock."
6   Do you see that?
7   A Yes, uh-huh.
8   Q What is the definition of clock in the IEEE
9   standard?
10   A It's no participating in the precision time
11 protocol, PTP, that is capable of providing a
12 measurement of the passage of time since a defined
13 epoch.
14   Q And you have read these definitions before
15 you began developing the PTP functionality in Cisco's
16 industrial Ethernet devices; right?
17   A Yes.
18   Q So you were familiar with these IEEE defined
19 terms before you began working on the PTP
20 functionality; correct?
21   A Yes.
22   Q And you knew they were in the IEEE standard;
23 correct?
24   A Yes.
25   Q Okay. Now, the definition of clock that you

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1   read, is that your understanding of what a clock is in
2   the context of PTP?
3   MR. PAK: Objection; vague.
4   THE WITNESS: So, in the context of PTP
5   standard or spec, yes, a clock means this.
6   MR. WONG: Q. A clock means what it says on
7   page 4 of --
8   A Yes.
9   Q -- Exhibit 93?
10   A Right.
11   Q And you -- you -- you did not come up with
12   the term clock in the context of PTP; correct?
13   A No.
14   Q All right.
15   Clock is just a defined term in the IEEE
16   standard marked as Exhibit 93; correct?
17   A Yes.
18   Q Okay. If you'll look at page 6 of
19   Exhibit 93.
20   A (Witness complies.) Right.
21   Q Term 3.1.23; do you see that?
22   It defines the term "parent clock" correct?
23   A Yes.
24   Q What's the definition of parent clock?
25   A The master clock to which a clock is

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1   synchronized.
2   Q And is that your understanding of what a
3   parent clock is in the context of PTP?
4   A It is.
5   Q And you get that understanding from the IEEE
6   standard marked as Exhibit 93; correct?
7   A Yes.
8   Q All right.
9   You don't disagree with that definition;
10   correct?
11   A No.
12   Q And you don't disagree with the definition of
13   clock in the IEEE PTP standard; right?
14   A No, I don't.
15   Q Okay. Now, the term parent also refers to
16   the parent clock in a PTP context; correct?
17   A The term parent --
18   MR. PAK: Objection; vague.
19   THE WITNESS: -- in this document --
20   MR. WONG: Yes.
21   THE WITNESS: -- whenever -- yeah, a parent
22   clock is used, it means the definition here.
23   MR. WONG: Sure.
24   THE WITNESS: Is that the question?
25   MR. WONG: Sure.

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1   Q If you'd turn to page 53 of Exhibit 93. Let
2   me know when you're there.
3   A 53?
4   Q The ending control number for that is '31805.
5   A (Witness complies.) Yeah, I found it.
6   Q Okay. If you look above -- so, near the
7   bottom of the page, you see in bold:
8   "7.6.2 PTP Device Attributes."
9   Do you see that?
10   A Yes.
11   Q Okay. Right above that, there are -- there
12   are two sort of indented bullet points, I guess, or
13   dashes.
14   Do you see that?
15   A (Witness nods head.)
16   Q And then, right above that is a sentence that
17   begins with the words "ordinary and boundary clocks."
18   Do you see that?
19   A Ordinary and boundary clocks.
20   Q Yep.
21   A Okay.
22   Q So that full sentence says:
23   "Ordinary and boundary clocks may keep
24   statistics on the performance of their parents using
25   the following attributes."

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1   Do you see that?
2   A I haven't found that sentence.
3   Oh, yeah, found it.
4   Q Okay. That sentence in the IEEE standard
5   uses the term parents; do you see that?
6   A Yes.
7   Q Is it your understanding that -- that that
8   parents term refers to a parent clock?
9   MR. PAK: If you need to take some time to
10   look at the document more closely, you can do that.
11   THE WITNESS: Yes.
12   MR. PAK: Okay.
13   THE WITNESS: I think it -- it's referring to
14   the parent clock.
15   MR. WONG: Right.
16   Q There's no ambiguity in the context of the
17   IEEE standard that parent refers to parent clock;
18   right?
19   A Yes. Here, it means -- yeah, it does mean
20   parent clock.
21   Q Okay. So, in the context of the PTP
22   standard, referring to the parent of a clock is
23   referring to the defined term parent clock that we
24   discussed a few minutes ago; correct?
25   A Yes.

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1   Q Okay. Now, if you look on that same page,
2 underneath the heading "PTP Device Attributes," you
3 see the term "Priority 1"?
4   A Yes.
5   Q What is a PTP device attribute?
6   A It's certain characteristics of a PTP clock.
7   Q That are defined by the IEEE standard;
8 correct?
9   A Yes, uh-huh.
10   Q Okay. And these are device attributes that
11 are mandatory to be supported to comply with the PTP
12 standard; correct?
13   MR. PAK: Objection; calls for expert
14 testimony.
15   MR. WONG: Q. If you know.
16   A I didn't see anything as mandatory here.
17   Q Okay. If you read the description of
18 priority 1, it says:
19   "The attribute priority 1 is used in the
20 execution of the best master clock algorithm; see
21 9.3.2. Lower values take precedence. The
22 initialization value of priority 1 is specified in a
23 PTP profile. The value of priority 1 shall be
24 configurable to any value in the range 0 to 255,
25 unless restricted by limits established by an

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1 applicable PTP protocol" -- I'm sorry -- "PTP
2 profile."
3   Did I read that correctly?
4   A Yes.
5   Q Okay. Now, the -- the definition says the
6 value of priority 1 shall be configurable.
7   Do you see that?
8   A Yes.
9   Q "Shall" is a mandatory term in the IEEE
10 standard; correct?
11   MR. PAK: Same objection; calls for expert
12 testimony.
13   THE WITNESS: Would you please rephrase that
14 question.
15   MR. WONG: Sure.
16   Q "Shall" is a mandatory term -- strike that.
17   "Shall" indicates a mandatory requirement in
18 the IEEE standard; correct?
19   MR. PAK: Objection; calls for expert
20 testimony.
21   MR. WONG: Q. And it may help --
22   A I can say only my understanding, that it's
23 recommending that priority 1 is an attribute, that
24 this is a configurable value.
25   Q If you'd turn to page 9 of the same document,

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1 Exhibit 93.
2   A (Witness complies.) Okay.
3   Q And you see right in the middle of the page,
4 it says "word usage"; correct?
5   A Uh-huh, I see.
6   Q And it defines "shall" in 4.2.1.
7   Do you see that?
8   A Yes.
9   Q And this is -- and you -- you read the entire
10 standard before you implemented any of the
11 functionality with Cisco's products; right?
12   A Yes.
13   Q The definition of "shall" -- well, why don't
14 you please read the definition of "shall."
15   A "The word 'shall,' which is equivalent to 'is
16 required to,' is used to indicate mandatory
17 requirements strictly to be followed in order to
18 conform to the standard and from which no deviation is
19 permitted."
20   Q Okay. And you understood that when you read
21 the standard; correct?
22   A Yes.
23   Q Okay. If you'd turn back to page 53 that we
24 were just on.
25   A (Witness complies.) Right.

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1   Q So, it is a -- it is a requirement to comply
2 with the standard for there to be a value of
3 priority 1 that is configurable as described here on
4 page 53; correct?
5   A Yes.
6   MR. PAK: Same -- and again same objection;
7 calls for expert testimony.
8   MR. WONG: Q. If you'd turn -- I'm sorry.
9   And -- and do you have any disagreements with
10 the description of priority 1 here on page 53?
11   A No.
12   Q Okay. If you'd turn to the next page in
13 Exhibit 93.
14   A (Witness complies.)
15   Q At the top, it has another attribute,
16 "priority 2."
17   Do you see that?
18   A Yes.
19   Q And the definition of priority 2 also has a
20 sentence that says:
21   "The value of priority 2 shall be
22 configurable to any value in the range 0 to 255,
23 unless restricted by limits established by an
24 applicable PTP profile."
25   Do you see that?

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1   A Uh-huh, yes.
2   Q So the value of priority 2 -- strike that.
3   So it's a requirement to comply with the PTP
4   standard for the value of priority 2 to be
5   configurable as described here on page 54; correct?
6   MR. PAK: Same objection; calls for expert
7   testimony.
8   THE WITNESS: Yes, it's a parameter.
9   MR. WONG: Right.
10   THE WITNESS: Right.
11   Q And that's your understanding, based upon the
12   standard's own definition of what "shall" means within
13   the document; correct?
14   A Yes.
15   Q Okay. And when you implemented the PTP
16   functionality in Cisco's devices, was it your
17   intention to comply with the standard -- with the IEEE
18   standard marked as Exhibit 93?
19   MR. PAK: Objection; vague.
20   THE WITNESS: Again, there were certain
21   multiple aspects of it; right?
22   MR. WONG: Q. But, with respect to the two
23   device attributes that we just discussed, was it your
24   intention to comply with the IEEE standard?
25   MR. PAK: Same objection; vague.

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1   THE WITNESS: I think we intended to make
2   these two parameters as configurable for PTP clock.
3   So, for that part, yes, the compliance is that we
4   shall make these as configurable values.
5   MR. WONG: Q. As required by the IEEE
6   standard marked as --
7   A Yes.
8   Q -- Exhibit 93; correct?
9   A Yes.
10   Q Is it possible to have vendor
11   interoperability for PTP if you don't comply with the
12   PTP standard?
13   MR. PAK: Objection; calls for expert
14   testimony; vague.
15   MR. WONG: Q. In your view?
16   MR. PAK: Same objections.
17   THE WITNESS: In my view, the basic external
18   behaviors needs to be consistent to be interoperable.
19   MR. WONG: Q. And are the device attributes
20   that we just discussed, priority 1 and priority 2, are
21   those part of those external behaviors that need to be
22   consistent in order to support interoperability?
23   MR. PAK: Same objection; vague.
24   THE WITNESS: I think the priority value
25   being configurable, changeable by users is -- as you

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1   said, as required -- it's required to be
2   interoperable --
3   MR. WONG: Okay.
4   THE WITNESS: -- at the PlugFest.
5   MR. WONG: Q. So, to comply with the PTP
6   standard, there have to be configurable device
7   attributes called priority 1 and priority 2 as
8   described on pages 53 and 54 of Exhibit 93?
9   MR. PAK: Objection; calls for expert
10   testimony. Objection; vague.
11   THE WITNESS: My understanding is these two
12   parameters, which needs to be configurable.
13   MR. WONG: Okay.
14   Q To comply with the PTP standard?
15   A Yes.
16   Q Okay. If you'd turn to page 62 of that same
17   document, Exhibit 93. Let me know when you're there.
18   A (Witness complies.) Yes, I'm on page 63.
19   Q 62. I'm sorry.
20   A 62. (Witness complies.) Okay.
21   Q Okay. About two-thirds down on that page 62,
22   there is a subheading 7.7.2.3.
23   Do you see that?
24   A Yes.
25   Q And the text next to that is:

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1   "Sync (multicast) message transmission
2   interval."
3   Do you see that?
4   A Yes.
5   Q Now, the sentence below that says:
6   "The port DS.log sync interval shall specify
7   the mean time interval between successive sync
8   messages, i.e., the sync interval, when transmitted as
9   multicast messages."
10   Do you see that?
11   A Yes.
12   Q Did I read that correctly?
13   A Yes.
14   Q So the -- and that sentence, by the way, uses
15   the word "shall" again; correct?
16   A Yes.
17   Q That indicates that this is a required -- a
18   requirement of the PTP standard; correct?
19   MR. PAK: Objection; calls for expert
20   testimony.
21   THE WITNESS: I -- my understanding is this
22   is to be supported to implement a PTP protocol.
23   MR. WONG: Q. And that understanding is
24   based upon the definition of "shall" provided on
25   page 9 of the standard; correct?

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1   A Yes, uh-huh.
2   Q   That definition of "shall" says that no
3   deviation is permitted; correct?
4   If you need to look at page 9, you can
5   confirm that.
6   A   Right. No deviation of the behavior, I
7   guess.
8   Q   Okay.
9   A   Right.
10   Q   Is that your understanding?
11   A   Right.
12   Q   So turning -- so you're still on page 62.
13 The IEEE standard uses the term "sync interval" to
14 describe the mean time interval between successive
15 sync messages; correct?
16   A   Sync interval as specified in the text here?
17   Q   Yes.
18   A   Right. Yes.
19   Q   So, do you agree that the IEEE standard
20 marked as Exhibit 93 on page 62 defines the sync
21 interval as the mean time interval between successive
22 sync messages when transmitted as multicast messages?
23   A   Yes.
24   Q   Okay. Do you have any disagreements with
25 that definition?

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1   A No.
2   Q   Okay. Is that your understanding of what a
3   sync interval is in the context of PTP?
4   A   Yes.
5   MR. PAK: Objection; calls for expert
6   testimony.
7   MR. WONG: I'm going to mark two exhibits
8   right now. This one will be -- what number are we on?
9   THE REPORTER: 95.
10   MR. WONG: Okay. This one will be 95.
11   (Document marked Exhibit 95
12   for identification.)
13   MR. WONG: 95. I'll do them one at a time.
14 Okay.
15   Q   So the court reporter has marked as
16 Exhibit 95 the document with control
17 Nos. CSICLI00846643, and that's it.
18   A   Uh-huh.
19   Q   Ms. Liu, do you recognize this document?
20   A   Yes.
21   Q   Is this one of the documents that refreshed
22 your recollection as to prior events?
23   A   Yes.
24   Q   Okay. At the top -- first of all, this is an
25 e-mail; correct?

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1   A Yes.
2   Q   And at the top of Exhibit 95, there is a
3   "From" field on the e-mail.
4   Do you see that?
5   A   Yes.
6   Q   And it says "Toni Liu."
7   Do you see that?
8   A   Yes.
9   Q   That's you; correct?
10   A   Yes.
11   Q   Your e-mail address while at Cisco was
12 liut@cisco.com; correct?
13   A   Yes.
14   Q   Now, was your e-mail address the same as it
15 was -- in your second period at Cisco as it was at
16 your first period at Cisco?
17   A   It's the same.
18   Q   It's the same?
19   A   Yes.
20   Q   Okay. And this was -- this e-mail, marked as
21 Exhibit 95, was sent on June 25th, 2008; correct?
22   A   Yes.
23   Q   Okay. All right. Set that down for a
24 moment.
25   MR. WONG: Let's mark this one as Exhibit 96.

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1   (Document marked Exhibit 96
2   for identification.)
3   MR. WONG: This is 96.
4   Q   The court reporter has marked as Exhibit 96 a
5   document bearing control Nos. CSICLI00608739 to '740.
6   Please take a moment to look at this document.
7   A   (Witness complies.) Okay.
8   Q   This is also an e-mail; correct?
9   A   Yes.
10   Q   At the very top, there's a "From" field for
11 this e-mail.
12   Do you see that?
13   A   Yes.
14   Q   It also says it's from liut@cisco.com, Toni
15 Liu?
16   A   Yes.
17   Q   That's you; correct?
18   A   True.
19   Q   Do you have any doubt that you sent this
20 e-mail marked as Exhibit 96?
21   A   I don't have any doubt I sent it.
22   Q   Okay. And the exhibit marked as Exhibit 95,
23 do you have any doubt that you sent that e-mail?
24   A   No.
25   Q   Okay. Now, if you look at Exhibit 95 and

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1   A F T E R N O O N   S E S S I O N
2   1:41 P.M.
3
4
5
6   THE VIDEOGRAPHER: We are back on the record.
7   It is 1:41.
8   MR. WONG: Q. So, Ms. Liu, before the lunch
9   break, we talked about the five commands that are
10   associated with you in Exhibit 92.
11   A   Yes.
12   Q   One of the commands is "PTP priority 1."
13   A   Yes.
14   Q   Do you see that?
15   A   Uh-huh.
16   Q   What is the function that the "PTP
17   priority 1" command performs?
18   A   It configures the priority 1 parameter for
19   the PTP clock.
20   Q   Okay. And when you say "for the PTP clock,"
21   you mean PTP as defined by the IEEE standard; right?
22   A   Yes.
23   Q   You're not talking about a different PTP
24   that's separate from the IEEE standard; right?
25   A   No.

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1   Q   Okay. And the PTP in the command "PTP
2   priority 1" refers to the IEEE standard; correct?
3   MR. PAK: Objection; vague.
4   THE WITNESS: It refers to, yeah, PTP.
5   MR. WONG: Q. It refers to the IEEE PTP
6   standard that we marked as Exhibit 93; correct?
7   A   Yes.
8   Q   Okay. And the use of the word PTP in all
9   five of the commands that are associated with you in
10   Exhibit 92, they all come from the IEEE standard
11   marked as Exhibit 93; correct?
12   MR. PAK: Objection; vague; mischaracterizes
13   the witness' testimony.
14   THE WITNESS: You mean the PTP --
15   MR. WONG: Q. Let me ask the question --
16   A   -- word in the command?
17   Q   Yes.
18   Let me ask a clean question.
19   The use of the word PTP in all five of the
20   commands that are associated with you in Exhibit 92 --
21   A   Right.
22   Q   -- that word came from the PTP IEEE standard
23   that was marked as Exhibit 93; correct?
24   MR. PAK: Same objections.
25   THE WITNESS: Yes, it means the same.

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1   MR. WONG: Okay.
2   Q   And you -- in describing the function
3   performed by the "PTP priority 1" command, you
4   testified that it configures the priority 1 parameter
5   for the PTP clock; correct?
6   A   Yes.
7   Q   And the priority 1 parameter for the PTP
8   clock, that's the same priority 1 parameter that we
9   discussed in Exhibit 93; correct?
10   A   When you say "parameter," I think they are a
11   little different in the CLI and the spec.
12   Q   How are they different?
13   A   The -- in the spec, it's the attribute of the
14   clock; right? When I say parameter, I mean the -- in
15   the context of the CLI command is a parameter.
16   Q   Oh, I see.
17   So -- so the word priority 1 in the "PTP
18   priority 1" CLI command is a parameter of the command?
19   A   Yes.
20   Q   That's what you mean by --
21   A   Right.
22   Q   -- parameter?
23   A   Right.
24   Q   Okay. Now, does the priority 1 parameter in
25   the CLI command "PTP priority 1," does that refer to

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1   the priority 1 attribute in the IEEE standard marked
2   as Exhibit 93?
3   MR. PAK: Objection; vague.
4   THE WITNESS: Yes. I think I chose it for
5   the intention to mean the priority 1 attribute of the
6   clock.
7   MR. WONG: Q. And is your answer the same
8   for the command "PTP priority 2"?
9   Is the priority 2 command parameter -- does
10   that refer to the priority 2 attribute in the IEEE
11   standard marked as Exhibit 93?
12   MR. PAK: Same objection.
13   THE WITNESS: It's referring to the same --
14   that attribute, yes.
15   MR. WONG: Q. That attribute in the IEEE
16   standard?
17   A   In the IEEE standard, yes.
18   Q   Okay. And you knew about the priority 1 and
19   priority 2 attributes in the IEEE standard before you
20   started adding the "PTP priority 1" and "PTP
21   priority 2" commands to the iOS software; correct?
22   A   Yes, I read the spec.
23   Q   And you were aware of those two particular
24   attributes before you started adding the "PTP
25   priority 1" and "PTP priority 2" commands to Cisco's

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1   routing software; right?
2   A   Yes.
3   Q   How long did it take you to come up with the
4   "PTP priority 1" command?
5   A   I don't remember how long it took for me to
6   come up with the list of CLI commands.
7   Q   Okay. I'm just asking about the -- the one
8   command, "PTP priority 1."
9   A   Right.
10   Q   Did -- did that take you an hour to come up
11   with that command?
12   MR. PAK: Objection; vague.
13   THE WITNESS: You mean just to decide on the
14   syntax of the command?
15   MR. WONG: On the two words in the command.
16   That's right.
17   Q   How long did it take you to decide on the
18   two words, "PTP priority 1," in that command?
19   A   I don't remember.
20   Q   Did it take you more than a day?
21   MR. PAK: Objection; vague.
22   THE WITNESS: Maybe not. I don't recall the
23   details of -- of this level.
24   MR. WONG: Okay.
25   Q   Do you --

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1   A   How long, yeah.
2   Q   Are you done with your answer?
3   A   Right.
4   Yes, I'm done with my answer.
5   Q   Okay. Do you know if it took you just a few
6   minutes?
7   MR. PAK: Same objections.
8   THE WITNESS: I don't recall the details of
9   how long it took.
10   MR. WONG: Okay.
11   Q   So, you don't know whether it took you a few
12   minutes or more than a day to decide upon the
13   two words "PTP priority 1"; is that correct?
14   A   I don't recall the details on that.
15   Q   Okay. And are -- are there any documents
16   that would refresh your memory of how long it took you
17   to come up with the "PTP priority 1" command?
18   A   I don't see anything in the conversation
19   here. So the e-mail here was after I came up with the
20   command.
21   Q   Okay. Were there any other e-mails that you
22   reviewed in preparation for this deposition that
23   refreshed your recollection about the five commands
24   that are associated with you?
25   A   It's the same e-mail that you give me

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1   today --
2   Q   Okay.
3   A   -- that I saw.
4   Q   So the --
5   A   Yeah.
6   Q   So the same e-mails that were marked as
7   exhibits in today's deposition are the ones that
8   refreshed your memory?
9   A   Right.
10   Q   Okay. How long did it take you to write
11   the -- strike that.
12   Did you write the implementing source code
13   for the "PTP priority 1" command
14   A   I did write the source code for implementing
15   this command.
16   Q   How long did it take you to write the source
17   code for the "PTP priority 1" command?
18   A   I don't remember any time frame on this.
19   It's -- it's been a while.
20   Q   Do you know if it took you longer to write
21   the implementing source code for the "PTP priority 1"
22   command than it took you to choose the two words "PTP
23   priority 1"?
24   MR. PAK: Objection; vague.
25   THE WITNESS: I would think it took longer to

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1   implement it.
2   MR. WONG: Q. Would your answer be the same
3   for the other four commands that are associated with
4   you in Exhibit 92?
5   A   I know I gave some thought on these commands
6   when I came up with them. But particular to how long
7   it took for me to do any of these, that's the part I
8   don't remember anymore.
9   But I did remember it's among all of the
10   attributes of -- or things mentioned in the spec, I
11   chose a particular subset of things which I think I
12   should provide a CLI command for user to configure
13   them.
14   So that's the -- that's -- I think it's part
15   of the decision-making, and that could have taken some
16   time. But how long I took, that's the part I don't
17   remember now.
18   Q   Okay. And my question was more about your
19   testimony about the "PTP priority 1" command, where
20   you said it took longer to write the implementing code
21   for that command than it did to choose the two words
22   in the command.
23   Do you -- do --
24   A   I --
25   Q   -- do you remember testifying to that effect?

36 (Pages 141 to 144)

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1   A Yes. I -- I agree --
2   Q Okay.
3   A -- that's likely true.
4   Q So that's likely true for the other four
5 commands as well?
6   MR. PAK: Objection; vague.
7   THE WITNESS: That's -- yeah, I can always
8 say that's likely true.
9   MR. WONG: Okay.
10   Q And you say "it's likely true" just based
11 upon your experience programming?
12   A It's -- yeah, it's just based on my
13 experience working with CLI commands.
14   Q What type of programming is required to
15 implement a command like "PTP priority 1"?
16   A It's a C programming that we were using. So
17 for the -- in general, you do the front end of
18 interface, so you come up with the command. But then
19 you -- then you spend time implementing hooking it up
20 to the back-end code.
21   Q Excuse me.
22   And when you say "back-end code," is that the
23 same thing as the implementing source code?
24   That's the term that I was using.
25   Is that the same thing, in your

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1 understanding?
2   A Yes.
3   There -- so, when the CLI command is
4 received, something needs to happen based on what has
5 been configured as being specified as the parameter.
6 So that's the interface I was referring to, that I
7 hook up to the back-end behavior of the clock.
8   Q And the back-end behavior for each command
9 that you are associated with in Exhibit 92, did you
10 write that source code?
11   A I did write the source code.
12   Q Did you have anyone else's help in writing
13 the source code for those five commands associated
14 with you in Exhibit 92?
15   A No. I wrote all of them.
16   Q The "PTP sync interval" command --
17   A Yes.
18   Q Well, actually, just for clarity, what
19 function does the "PTP priority 2" command perform?
20   A It configures another parameter which helps
21 to determine the -- the clock.
22   Q And that other parameter you're talking about
23 is the priority 2 attribute that is defined by the
24 IEEE standard marked as Exhibit 93; correct?
25   A Yes.

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1   Q Okay. What function does the "PTP sync
2 interval" command perform?
3   A It configures how often the clock syncs with
4 the master.
5   Q And do you recall earlier we were looking at
6 the IEEE standard marked Exhibit 93 and a term called
7 sync interval in there?
8   A Right.
9   Q Is the sync interval, that the "PTP sync
10 interval" command refers to, the same sync interval
11 that we discussed in Exhibit 93?
12   MR. PAK: Objection; vague.
13   THE WITNESS: I think that was -- this
14 command was used -- was defined to be used to
15 configure that part of the clock.
16   MR. WONG: Right.
17   Q And by "that part of the clock," you mean the
18 sync interval attribute defined by the IEEE PTP
19 standard; right?
20   A Yes.
21   Q Now, you chose the term priority 1 because
22 priority 1 is an attribute that's in the IEEE
23 standard; right?
24   MR. PAK: Objection; vague.
25   THE WITNESS: You mean when I wrote the

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1 command?
2   MR. WONG: Q. When you --
3   A When I -- when I chose to use priority 1;
4 right?
5   Q Yes, that's what I'm asking.
6   A Yes. When I chose the word, I meant to
7 configure this attribute for the clock. That was
8 true.
9   Q And this attribute for the clock, you're
10 referring to the priority 1 attribute that's defined
11 in the IEEE standard; right?
12   A Yes.
13   Q And your answer is the same for the
14 priority 2 attribute defined in the IEEE standard,
15 correct, with respect to the PTP priority 2 command?
16   A Yes.
17   Q And you chose the words sync interval because
18 the IEEE standard marked as Exhibit 93 described --
19 strike that.
20   You chose the words sync interval because the
21 IEEE standard marked as Exhibit 93 also used the term
22 sync interval; correct?
23   MR. PAK: Objection; vague.
24   THE WITNESS: When you say that, it makes me
25 feel that you -- it's a direct translate from the spec

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1   to the command.
2   Is that what you mean --
3   MR. WONG: No, no. I'm --
4   THE WITNESS: -- when you ask the question?
5   MR. WONG: No, no.
6   Q   My question is simply: When you -- you
7   testified that the -- one second.
8   Can you tell me again what the function is
9   that the "PTP sync interval" performs.
10   A   It configures or determines how often the
11   clock syncs with the master clock.
12   Q   And that functionality is described in the
13   IEEE standard; correct?
14   A   Yes.
15   Q   And the IEEE standard uses the term sync
16   interval to describe what you just described as the
17   function of the "PTP sync interval" command; right?
18   MR. PAK: Objection; vague.
19   THE WITNESS: It's the same meaning.
20   MR. WONG: Okay.
21   Q   So you chose the words sync interval for the
22   "PTP sync interval" command because the IEEE standard
23   used the same term to describe what the command does;
24   right?
25   MR. PAK: Objection; vague.

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1   THE WITNESS: I chose it based on my
2   understanding of the spec. And so it's -- it's just a
3   preference how -- how to express this -- how -- how to
4   express this parameter in the -- for the user
5   interface. I wouldn't say it's directly, because it's
6   in the spec. That's why I use it.
7   MR. WONG: Q. Well, you wouldn't call -- so
8   the IEEE has a priority 1 attribute; right?
9   A   Right.
10   Q   And it's a requirement of the PTP standard;
11   right?
12   A   Yes.
13   Q   Would you call the priority 1 standard
14   priority 2 in a command if the command sets the
15   priority 1 attribute?
16   MR. PAK: Objection; vague.
17   THE WITNESS: No. I would set it as
18   priority 1.
19   MR. WONG: Right.
20   THE WITNESS: Not priority 2.
21   MR. WONG: Q. And that's because you want
22   the command to match the same term that's used in the
23   standard; right?
24   MR. PAK: Objection; mischaracterizes the
25   witness' testimony.

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1   MR. WONG: Let me rephrase the question.
2   Q   For a command "PTP priority 1" that sets an
3   attribute that's called priority 1 in the spec, you
4   should use the same word in the command; correct?
5   MR. PAK: Objection; assumes facts not in
6   evidence.
7   THE WITNESS: No, I don't think that part was
8   true.
9   For example, you could use clock priority 1
10   or clock priority 2; right? There -- there is no
11   direct association of what I use in the command line
12   CLI that it has to match this spec. That's the --
13   that -- they are not equal.
14   MR. WONG: Okay.
15   Q   Well, priority 1 has a particular meaning in
16   the PTP context; correct?
17   A   Yes.
18   Q   And the "PTP priority 1" command performs the
19   function in the PTP context; correct?
20   MR. PAK: Objection; vague; incomplete
21   hypothetical.
22   THE WITNESS: The -- yes, priority attribute
23   is an important part of a PTP clock.
24   MR. WONG: Q. And you chose commands that
25   would be clear to a user trying to set these industry

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1   standard attributes; right?
2   MR. PAK: Objection; assumes facts not in
3   evidence; mischaracterizes the witness' testimony.
4   THE WITNESS: I think I chose it based on my
5   understanding of the spec. And I don't remember using
6   it because it's in the spec.
7   MR. WONG: Q. But you had reviewed the spec
8   entirely before you started adding these five commands
9   associated with you in Exhibit 92; correct?
10   A   I did review the spec, yes.
11   Q   So you -- so you were aware that these terms
12   were defined in the IEEE specification marked as
13   Exhibit 93 before you added the five commands
14   associated with you in Exhibit 92; right?
15   MR. PAK: Objection; vague.
16   THE WITNESS: When you say "five commands,"
17   that would include the show command which are
18   different, right, than these configuration commands?
19   MR. WONG: Sure.
20   Q   Why don't we just limit the question then to
21   the three commands that we just were talking about:
22   "PTP priority 1" --
23   A   Right.
24   Q   -- "PTP priority 2," and "PTP sync interval."
25   A   Right.

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1   Q   You were aware that the terms priority 1,
2   priority 2, sync interval, and PTP were defined in the
3   IEEE specification marked as Exhibit 93 before you
4   added those three commands to Cisco's routing
5   software; correct?
6   A   I'm aware of those terms being defined in the
7   1588 standard.
8   Q   Okay. Before you added those three commands
9   to the Cisco software; correct?
10   A   Yes.
11   Q   Okay. Now, "show PTP clock" is another
12   command that you're associated with; correct?
13   A   Yes.
14   Q   What's the function performed by the "show
15   PTP clock" command?
16   A   It shows the state and status of the clock.
17   And I don't recall the entire output from the command,
18   but I think that's probably summarize majority of the
19   output.
20   Q   Okay. And as we discussed earlier in today's
21   deposition, the PTP IEEE specification defines the
22   term clock; correct?
23   A   It defined the term clock, yes.
24   Q   Okay. And the clock that is referred to in
25   the command "show PTP clock" is the clock that is

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1   defined in the PTP standard; correct?
2   MR. PAK: Objection; vague.
3   THE WITNESS: Well, the command shows the PTP
4   clock status.
5   MR. WONG: Q. And when you refer to "the PTP
6   clock" in that response you just gave, you're
7   referring to the clock that is defined in the PTP
8   standard; correct?
9   A   Yes, it means the clock.
10   Q   Now, the -- the word "show" in that command,
11   were there other commands in iOS that used the word
12   "show" before you added this "show PTP clock" command
13   to the software?
14   A   Yes.
15   Q   Okay. You were familiar that other commands
16   used the first word of "show" to display information
17   before you added the "show PTP clock" command;
18   correct?
19   A   Yes.
20   Q   Okay. So you -- you simply followed what
21   other commands were doing when you chose the word
22   "show" in "show PTP clock"; is that right?
23   MR. PAK: Objection; assumes facts not in
24   evidence; mischaracterizes the witness' testimony.
25   MR. WONG: Q. If anything that I'm saying --

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1   A   "Show" is a --
2   Q   Sorry.
3   A   -- big category of commands. Like, there is
4   debug. There is config. There is show. So show is
5   one big category of commands.
6   Q   And there was a big -- and that category of
7   commands, the show commands, existed before you added
8   the "show PTP clock" command to the software; correct?
9   A   Yes.
10   Q   And you were just building upon that category
11   of commands when you used the word "show" in "show PTP
12   clock"; correct?
13   MR. PAK: Objection; mischaracterizes the
14   witness' testimony.
15   THE WITNESS: Yes, I think that -- that was
16   the intention.
17   MR. WONG: Q. And is the same
18   explanation -- does the same explanation apply to
19   "show PTP parent" for the show aspect of that command?
20   A   Yes, for the show aspect of the command, yes.
21   Q   Okay. What function does the "show PTP
22   parent" command perform?
23   A   It shows the status of the parent clock.
24   Q   When you say "the parent clock," are you
25   referring to the parent clock as defined in the PTP

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1   standards?
2   A   Yes.
3   Q   And you recall discussing the definition of
4   parent clock in the standards earlier in this
5   deposition; correct?
6   A   Yes.
7   Q   And another shorthand used by the IEEE
8   standard for parent clock is simply parent; correct?
9   MR. PAK: Objection; vague.
10   THE WITNESS: Can you refer me to that page.
11   MR. WONG: Sure, sure, absolutely.
12   Q   I think it's on page 53 of Exhibit 93. It's
13   in that sentence maybe two-thirds of the way down on
14   page 53 that starts with:
15   "Ordinary and boundary clocks may keep
16   statistics."
17   A   Uh-huh.
18   "Using the following attribute."
19   Okay.
20   Q   So you would agree that, in the IEEE
21   standard, it uses the term parent as shorthand for
22   parent clock?
23   A   Yes.
24   Q   Okay. Do you know if commands that use the
25   word "show" were used before they were used in Cisco's

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1 even supported a GUI interface; correct?
2   MR. PAK: Same objections.
3   THE WITNESS: I know the Catalyst switches --
4 there are GUI interfaces that -- that exists even
5 before we developed the CE500 switches.
6   MR. WONG: Okay.
7   Q And there was no proposal made to the parser
8 police to use a GUI interface for any of these
9 commands; correct?
10   A My understanding of parser police was their
11 responsibility is on the CLI commands.
12   Q Was there a GUI police?
13   A I don't know.
14   Q Now, your counsel was asking you about a
15 series of hypothetical alternatives that could
16 potentially have been used for these various commands.
17   Do you remember that line of questioning?
18   A Yes.
19   Q Where in Exhibit 96 do you propose the use of
20 a "PTP clock priority 2" command?
21   A In this e-mail, it was the final version
22 after we considered multiple options. I think in the
23 e-mail, it was the final version we wanted to propose
24 as the command.
25   Q Are you aware of other e-mails that exist

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1 that list out the various options that you actually
2 considered for each of these commands?
3   A I don't remember there would be e-mails with
4 the parser police. We only consult them at -- at the
5 very last stage.
6   Q Are there any e-mails in your recollection in
7 general, not just with the parser police, but with
8 your colleagues on the team, that list out the various
9 options that you actually considered when coming up
10 with any of these commands listed on Exhibit 96?
11   A I don't recall that detail.
12   Q Okay. Were there any other documents,
13 besides e-mails, where you would have listed out
14 alternatives that you actually considered back in
15 2008, when you were coming up with the commands that
16 are proposed in Exhibit 96?
17   A There could be conversations in meetings.
18 But as to e-mails, I'm not -- I don't recall the
19 details. I don't remember other e-mails.
20   Q Okay. So the only document that we have that
21 shows what commands were considered for these PTP
22 functions is Exhibit 96; correct?
23   A Yes. These e-mails are the ones, as far as I
24 can see.
25   Q Okay. And you -- did you destroy any

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1 documents while you were at Cisco that might have
2 contained other alternatives that you considered for
3 any of the PTP commands that we discussed today?
4   A No, I wouldn't have.
5   Q Okay. And, in preparing for this deposition,
6 did you see any other documents that showed any
7 alternatives to any of the PTP commands that are
8 listed in Exhibit 96?
9   A In preparation, I only saw these e-mails.
10   Q Okay.
11   A But again, I don't recall, during the time of
12 the few months of development, whether there was any
13 written record of alternatives. It's -- on my mind,
14 it's not 100 percent sure there was written record.
15   Q Okay. In fact, you're not even sure how long
16 it took for you to even come up with these commands as
17 compared to the development; right?
18   A I don't remember that part --
19   Q Right.
20   A -- of the detail.
21   Q That -- the part of coming up with these
22 commands is not as fresh in your memory; correct?
23   MR. PAK: Objection; mischaracterizes the
24 witness' testimony.
25   THE WITNESS: I would -- I'm pretty sure I

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1 came up with all of these commands.
2   MR. WONG: Okay.
3   THE WITNESS: I was the main developer --
4   MR. WONG: Okay.
5   Q But you don't remember --
6   A -- of all of this.
7   Q I'm sorry. Please finish your answer.
8   A Right.
9   Q But you don't remember whether you spent a
10 day or an hour or five minutes coming up with any of
11 these commands; correct?
12   A Right.
13   I don't remember, particular to each command,
14 how much time I spent on that.
15   MR. WONG: Okay. I have no further
16 questions.
17   MR. PAK: Again, we'll just mark this as
18 "Confidential" under the protective order.
19   And I don't have any further questions.
20   THE VIDEOGRAPHER: All right. This will
21 complete Ms. Liu's deposition, consisting of
22 three original discs, which will be retained by
23 Veritext.
24   The time is 3:36.
25   We are going off the record.

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 1        (WHEREUPON, the deposition ended
 2           at 3:36 p.m.)
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 1            CERTIFICATE OF REPORTER
 2        I, ANDREA M. IGNACIO, hereby certify that the
 3   witness in the foregoing deposition was by me duly
 4   sworn to tell the truth, the whole truth, and nothing
 5   but the truth in the within-entitled cause;
 6        That said deposition was taken in shorthand
 7   by me, a disinterested person, at the time and place
 8   therein stated, and that the testimony of the said
 9   witness was thereafter reduced to typewriting, by
10   computer, under my direction and supervision;
11        That before completion of the deposition,
12   review of the transcript [x] was [ ] was not
13   requested.  If requested, any changes made by the
14   deponent (and provided to the reporter) during the
15   period allowed are appended hereto.
16        I further certify that I am not of counsel or
17   attorney for either or any of the parties to the said
18   deposition, nor in any way interested in the event of
19   this cause, and that I am not related to any of the
20   parties thereto.
21   Dated: 01/29/2016
22
23          <%signature%>
24          ANDREA M. IGNACIO,
25          RPR, CRR, CCRR, CLR, CSR No. 9830
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 1            J U R A T
 2
 3        I, TONG LIU, do hereby certify under penalty
 4   of perjury, that I have read the foregoing
 5   transcript of my deposition in the matter of
 6   Cisco Systems, Inc., vs. Arista Networks, Inc.,
 7   taken on January 15, 2016; that I have made such
 8   corrections as appear noted herein in ink,
 9   initialed by me; that my testimony as contained
10   herein, as corrected, is true and correct.
11        DATED this ____ day of _____,
12   2015, at _____.
13        _____
14            SIGNATURE OF WITNESS
15
16   NOTARIZATION (If Required)
17   State of _____
18   County of _____
19   Subscribed and sworn to (or affirmed) before me on
20   this _____ day of _____, 20____,
21   by _____, proved to me on the
22   basis of satisfactory evidence to be the person who
23   appeared before me.
24   Signature: _____ (Seal)
25
```